



# Ballistic Missile Defense in the Asia-Pacific Region: Cooperation and Opposition

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## Summary

The growing number and modernization of ballistic missiles in the Asia-Pacific region poses a security challenge for the United States and its allies and is thus a concern for many in Congress. The United States has made ballistic missile defense (BMD) a central component of protection for forward-deployed U.S. forces and extended deterrence for allied security. The configuration of sensors, command-and-control centers, and BMD assets in the region has slowly evolved with contributions from treaty allies, primarily Japan, Australia, and South Korea.

Observers believe that North Korea has an arsenal of hundreds of short-range ballistic missiles and likely dozens of medium-range Nodong missiles; the extended-range Nodongs are considered capable of reaching Japan and U.S. bases there. Longer-range North Korean missiles appear to remain unreliable, with only one successful test out of five in the past 15 years. The U.S. intelligence community has not reached consensus that North Korea can build nuclear warheads small enough to put on ballistic missiles, and there is debate among experts on this question.

Congress has maintained a strong interest in the ballistic missile threat from both North Korea and Iran and in BMD systems to counter those threats. The National Defense Authorization Act (NDAA) for FY2013 (P.L. 112-239) notes that East Asian allies have contributed to BMD in various ways, and it calls on the Department of Defense to continue efforts to develop and formalize regional BMD arrangements.

The United States and its allies in the Asia-Pacific region have responded to the North Korean missile threat by deploying BMD assets and increasing international BMD cooperation. The United States and Japan have deployed Aegis-equipped destroyers with Standard Missile 3 (SM-3) interceptors, Patriot Advanced Capability 3 (PAC-3) batteries, early warning sensors, and advanced radars to meet the threat. South Korea and Australia have relatively basic BMD capabilities with plans to improve those in the near future. Cooperation on BMD follows the hub-and-spokes model of U.S. bilateral alliance relationships in the region; the multilateralism that underpins the European BMD arrangement is largely absent. Working-level coordination is especially close among the United States, Japan, and Australia, but senior U.S. defense officials have called for greater integration of U.S. and allied BMD efforts in East Asia to improve effectiveness.

The stated focus of U.S. BMD policy is to defend against limited missile strikes from rogue states, not to alter the balance of strategic nuclear deterrence with the major nuclear-armed states. Nonetheless, Russia and China have strongly criticized U.S. BMD deployments as a threat to their nuclear deterrents, and thus a danger to strategic stability. Chinese officials and scholars make several other criticisms: that BMD is antagonizing North Korea and thus undermining regional stability; that the United States is using BMD to strengthen its alliance relationships, which could be turned against China; and that BMD is undermining China's conventional missile deterrent against Taiwan, and thus emboldening those on Taiwan who want to formalize the island's separation from China.

Specific issues for Congress raised by BMD cooperation in the Asia-Pacific include

- appropriations for BMD programs;
- the potential for Foreign Military Sales financing of BMD technology to allies;

- the role of BMD cooperation in shaping alliance relationships and overall U.S. strategy in the region;
- the effect of U.S. BMD cooperation on U.S. relations with China, North Korea, and Russia; and
- the possible role of U.S. BMD cooperation in shaping military developments in those countries.

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## Introduction

This report presents background information and discusses potential issues for Congress relating to U.S. ballistic missile defense (BMD) efforts in the Asia-Pacific region. These efforts pose several potential policy, funding, and oversight issues. Decisions that Congress makes on these issues could affect U.S. defense funding requirements and capabilities, and U.S. relations with countries in the Asia Pacific region, including China, Japan, South Korea, North Korea, and Australia.

This report focuses on U.S. BMD efforts specific to the Asia-Pacific area. Other CRS reports cover U.S. BMD efforts elsewhere and issues other than BMD affecting U.S. relations with countries in the Asia-Pacific region.<sup>1</sup>

## Overview

The growing number and modernization of ballistic missiles in the Asia-Pacific region poses a security challenge for the United States and its allies. Observers believe North Korea has a large arsenal of short-range ballistic missiles (SRBMs). These North Korean SRBMs are believed to have sufficient range to hit targets in South Korea and Japan, including some U.S. military bases there. In recent years, North Korea has also conducted several tests of a long-range ballistic missile system that culminated in a successful space launch in December 2012. Yet, North Korea has not to date demonstrated a reliable capability to hit targets such as Guam or other U.S. territory with a ballistic missile.

Congress has expressed strong concern about the ballistic missile threat from both North Korea and Iran and strong interest in ballistic missile defense (BMD) systems to counter those threats. Section 229 of the National Defense Authorization Act (NDAA) for FY2013 (P.L. 112-239) states that it is the sense of the Congress that “the threat from regional ballistic missiles, particularly from Iran and North Korea, is serious and growing, and puts at risk forward-deployed forces, assets, and facilities.” The Department of Defense (DOD) is seeking to counter this threat with various measures, including the deployment of increasingly capable BMD systems. Although China is not the focus of U.S. BMD policy, Chinese missiles nevertheless present a complicating factor and increasing challenge for U.S. policy.

As a matter of policy and as a result of treaty commitments, the United States extends deterrence to protect its allies in the Asia-Pacific region. In essence, this means the United States will help deter threats to these allies and, if deterrence fails, use U.S. assets to defeat these threats. In 2010,

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<sup>1</sup> See, for example, CRS Report RS22758, *Iran's Ballistic Missile Programs: An Overview*, by Steven A. Hildreth; CRS Report R41549, *Missile Defense and NATO's Lisbon Summit*, by Steven A. Hildreth and Carl Ek; CRS Report R41526, *Navy Shipboard Lasers for Surface, Air, and Missile Defense: Background and Issues for Congress*, by Ronald O'Rourke; CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke; CRS Report R41219, *The New START Treaty: Central Limits and Key Provisions*, by Amy F. Woolf; CRS Report RL33436, *Japan-U.S. Relations: Issues for Congress*, coordinated by Emma Chanlett-Avery; CRS Report R41259, *North Korea: U.S. Relations, Nuclear Diplomacy, and Internal Situation*, by Emma Chanlett-Avery and Ian E. Rinehart; CRS Report RL30957, *Taiwan: Major U.S. Arms Sales Since 1990*, by Shirley A. Kan; and CRS Report R42822, *Australia and the U.S. Rebalancing to Asia Strategy*, by Bruce Vaughn.

the United States publicly confirmed to South Korea—and thus implicitly to Australia, Japan, and other allies covered by the U.S. “nuclear umbrella”—that extended deterrence includes BMD capabilities.<sup>2</sup> Congress reinforced this commitment in the FY2013 NDAA when it stated in Section 229 that, “The United States has an obligation to meet its security commitments to its allies, including ballistic missile defense commitments.”

As the threat from ballistic missiles has increased, the United States has gradually expanded its deployment of BMD assets and associated sensors in East Asia. The configuration of sensors, command-and-control (C2) centers, and BMD interceptors in East Asia—in other words, the regional “architecture” of U.S. BMD—has slowly evolved in concert with contributions from treaty allies. Cooperation on regional BMD offers the potential for greater effectiveness and cost efficiency, but it is proceeding at different rates with different countries. The U.S.-Australia partnership on early warning satellites dates back to the early Cold War and the Defense Support Program (DSP) that began in 1970. The United States and Japan have been cooperating on BMD programs since the 1990s and have a mature partnership. South Korea and Australia are beginning to acquire the necessary hardware and software for a more robust BMD capability to include missile interceptors. Southeast Asian allies Thailand and the Philippines have so far not spent their relatively scarce defense funds to procure and deploy BMD systems.

The most authoritative DOD document on BMD policy, the 2010 Ballistic Missile Defense Review Report (BMDR), declared a policy of implementing the “phased adaptive approach” (PAA) in East Asia.<sup>3</sup> That approach seeks to address the most acute near-term threats with deployments of existing technology and to pursue the deployment of BMD programs designed to deal with future, longer range ballistic missile threats as those threats develop. New capabilities are phased in to the system as they become available. The implementation of the phased adaptive approach in the region would require more formal arrangements in East Asia, which some believe could happen in 2013.

Although the BMDR and the 2010 Nuclear Posture Review (NPR)<sup>4</sup> both explicitly commit the United States to the goal of maintaining “strategic stability” with Russia and China, the two countries have raised strong objections to U.S. BMD programs. Moscow and Beijing both argue that the programs pose a threat to their nuclear deterrents, with Russian concerns focused on BMD in Europe, and Chinese concerns focused on BMD in the Asia-Pacific.

Issues for Congress related to the evolution of U.S. BMD posture and policy in the Asia-Pacific region include

- appropriations for BMD programs;
- the potential for Foreign Military Sales (FMS) financing of BMD technology to allies;
- the role of BMD cooperation in shaping alliance relationships and overall U.S. strategy in the Asia-Pacific region;

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<sup>2</sup> The Joint Communiqué of the October 2010 U.S.–South Korean Security Consultative Meeting describes extended deterrence as “the full range of military capabilities, to include the U.S. nuclear umbrella, conventional strike, and missile defense capabilities.” <http://www.defense.gov/news/d20101008usrok.pdf>

<sup>3</sup> *Ballistic Missile Defense Review Report*, Department of Defense, Washington, DC, February 2010, pp. 12-13.

<sup>4</sup> Department of Defense, *Nuclear Posture Review Report*, April 2010, pp. x-xi, 4-5, 28-29, <http://www.defense.gov/npr/docs/2010%20nuclear%20posture%20review%20report.pdf>.

- the effect of U.S. BMD cooperation on U.S. relations with China, North Korea, and Russia; and
- the possible role of U.S. BMD cooperation in influencing Chinese, North Korean, and Russian military developments.

## **Background on U.S. Ballistic Missile Defense Policy**

As noted above, the stated focus of U.S. BMD policy is to defend against limited missile strikes from so-called rogue states, namely Iran and North Korea, on the U.S. homeland or against allies and U.S. forces deployed abroad.<sup>5</sup> As a matter of policy, U.S. missile defenses are not intended to alter the balance of nuclear deterrence with the major nuclear-armed states, i.e. Russia and China. American and allied BMD assets in the Asia-Pacific region are, however, inherently capable of intercepting SRBMs in East Asia that are launched not just from North Korea, but also from China. Future U.S. BMD capabilities in the region may be designed to counter much longer-range ballistic missiles regardless of their country of origin

The guiding policy for deployment of BMD capabilities under the Obama Administration has been the PAA described above. U.S. policy documents on BMD describe an overall global BMD System, which may eventually link regional and homeland defenses against ballistic missile threats around the world. The 2010 BMDR states that the United States “will pursue a phased adaptive approach within each region [Europe, the Persian Gulf, and East Asia] that is tailored to the threats unique to that region, including their scale, the scope and pace of their development, and the capabilities available and most suited for deployment.”<sup>6</sup>

In Europe, the United States announced plans for a European Phased Adaptive Approach (EPAA) in 2009, and has so far completed the first phase of that effort.<sup>7</sup> The prospects for a formal Asia-Pacific Phased Adaptive Approach (APPAA) are unclear, with little information available on the pace of discussions with regional allies.

Implementation of an APPAA could provide an opportunity for the United States to identify and prioritize missile threats and to rally allies and partners around a common vision for defending their territory and for U.S. forward deployed forces against them. Currently, many of the platforms and sensors required for a Phase 1 capability in the Asia-Pacific region are already in place, such as Patriot and Aegis interceptor platforms and various ground-based sensors and radars. What is lacking, according to some analysts, is a formal agreement among allies that would lay out a path forward for a more integrated approach, as well as rules of engagement and clarity on various command and control issues.

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<sup>5</sup> Robert Gates, *Ballistic Missile Defense Review Report*, Department of Defense, Washington, DC, February 2010, pp. 12-13.

<sup>6</sup> *Ballistic Missile Defense Review Report*, p. 23.

<sup>7</sup> Frank A. Rose, *A U.S. State Department Perspective on the Phased Adaptive Approach to Missile Defense*, Remarks as delivered to the Middle East Missile & Air Defense Symposium, Abu Dhabi, United Arab Emirates, April 12, 2012, <http://www.state.gov/t/avc/rls/187774.htm>.



## Regional Policy Context

In late 2011, the Obama Administration announced a new centerpiece for its foreign and defense policy known as the “rebalance” (originally called a “pivot”) to the Asia-Pacific region. Former Secretary of State Clinton outlined this policy in a November 2011 article, “America’s Pacific Century,” in *Foreign Policy*.<sup>8</sup> The January 2012 Defense Strategic Guidance issued by DOD also highlights this change,<sup>9</sup> and U.S. officials have since expounded on the various elements of the strategy. One major thrust of the rebalancing strategy is deepened engagement with allies and partners in the region and a concurrent effort to knit strong bilateral ties into a web of regional security cooperation, particularly among treaty allies.<sup>10</sup>

## Ballistic Missile Capabilities in East Asia

A number of countries in the Asia-Pacific region possess ballistic missiles and have space launch programs. The United States government judges that allies with such capabilities present no security threat to the United States. The U.S. position for some time has been that Russian ballistic missiles do not threaten U.S. regional interests or the U.S. homeland, because of strategic deterrence, and therefore, in former Defense Secretary Robert Gates’ words, U.S. BMD systems “are not focused on trying to render useless Russia’s nuclear capability.”<sup>11</sup> China’s ballistic missile forces and their modernization are of some concern to the United States, but China’s forces are also not a stated focus of U.S. BMD programs. On the other hand, North Korea’s ballistic missiles and their continued development and deployment are a significant security concern for the United States and are a central stated focus of U.S. BMD programs. Because of Russian and Chinese concerns about the implications of U.S. BMD capabilities for the effectiveness of their missile arsenals, a short overview of Russian and Chinese ballistic missile capabilities is included below, along with a discussion of the threat posed by North Korea.

## North Korea’s Ballistic Missiles

Observers believe that North Korea has a large arsenal of ballistic missiles that could reach targets in South Korea and Japan. Pyongyang has declared its intent to develop a nuclear-armed ICBM capability, but North Korea’s longer range missiles capable of reaching Guam, Alaska, or

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<sup>8</sup> Hillary Clinton, “America’s Pacific Century,” *Foreign Policy*, November 2011. See also CRS Report R42448, *Pivot to the Pacific? The Obama Administration’s “Rebalancing” Toward Asia*, coordinated by Mark E. Manyin.

<sup>9</sup> Leon Panetta, *Sustaining U.S. Global Leadership: Priorities for 21<sup>st</sup> Century Defense*, Department of Defense, Washington, DC, January 5, 2012, [http://www.defense.gov/news/Defense\\_Strategic\\_Guidance.pdf](http://www.defense.gov/news/Defense_Strategic_Guidance.pdf).

<sup>10</sup> “DOD News Briefing with Adm. Locklear from the Pentagon,” Department of Defense, June 15, 2012, <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=5063>. See also CRS Report R42146, *In Brief: Assessing DOD’s New Strategic Guidance*, by Catherine Dale and Pat Towell.

<sup>11</sup> At the hearing, on the New START Treaty, Defense Secretary Gates stated that, “The [missile defense] systems that we have, the systems that originated and have been funded in the Bush administration, as well as in this administration, are not focused on trying to render useless Russia’s nuclear capability. That, in our view, as in theirs, would be enormously destabilizing, not to mention unbelievably expensive..... Our ability to protect other countries is going to be focused on countries like Iran and North Korea, the countries that are rogue states, that are not participants in the NPT [Nuclear Non-proliferation Treaty], countries that have shown aggressive intent.” U.S. Congress, Senate Committee on Foreign Relations, *The New START Treaty (Treaty Doc. 111-5)*, 111<sup>th</sup> Cong., 2<sup>nd</sup> sess., May 18, 2010, S. Hrg. 111-738 (Washington: GPO, 2010), p. 74.

the continental United States appear unreliable and in some cases are untested. A 2013 report by DOD on military and security developments involving North Korea assesses that Pyongyang will move closer to its goal of a nuclear-armed ICBM capability if it continues to test missiles and to devote scarce resources to nuclear programs.<sup>12</sup>

According to the DOD report, “North Korea has several hundred SCUD SRBM and Nodong MRBM missiles available for use against targets on the Korea Peninsula and Japan.”<sup>13</sup> An assessment by the International Institute for Strategic Studies (IISS) estimated that North Korea has a stockpile of roughly 700 SRBMs with about 100 launchers.<sup>14</sup> However, these unsophisticated missiles are highly inaccurate and therefore less militarily effective when armed with conventional warheads. Since 2010, the North Korean military has unveiled new ballistic missiles seemingly based on Soviet designs, although the new MRBM and mobile ICBM vehicles paraded through Pyongyang have not been flight tested and some analysts have assessed them as mock-ups. Experts remain divided on the potential capabilities of these missile types. The 2013 DOD report mentions an IRBM under development, but does not mention a road-mobile ICBM, although Secretary of Defense Chuck Hagel stated in March 2013 that North Korea “displayed what appears to be a road-mobile ICBM” in April 2012.<sup>15</sup>

Despite international condemnation and United Nations Security Council (UNSC) prohibitions, North Korea twice in 2012 launched long-range ballistic missiles carrying ostensible satellite payloads, demonstrating the importance that Pyongyang places on continued development of ballistic missiles. North Korea has made slow progress toward developing a reliable long-range ballistic missile. The December 2012 launch was the first successful space launch after four consecutive test failures in 1998, 2006, 2009, and April 2012.

#### **Missile Test or Satellite Launch?**

The core technology used to launch an object (such as a satellite) into orbit substantially overlaps with the technology used to deliver a ballistic missile warhead to its target. The components of a long-range ballistic missile are comparable to those found in a space launch vehicle. “Developing a [space launch vehicle] contributes heavily to North Korea’s long-range ballistic missile development,” according to a 2013 DOD Report to Congress on North Korea. Based on this overlap and concerns about missile proliferation, the United Nations Security Council acted to prohibit North Korean launches using any kind of ballistic missile technology—even for ostensibly non-military purposes—under Resolutions 1695 (in 2006), 1718 (in 2006), 1874 (in 2009), and 2087 (in 2013).

North Korea’s December 2012 space launch placed an object in orbit, so the vehicle used cannot technically be designated as an ICBM. Yet there is no evidence that any of the previous, failed launches of a Taepodong-1 or Taepodong-2 vehicle placed a payload in orbit. Thus, those launches might be considered ballistic missile tests.

Some argue that North Korea’s inconsistent progress toward developing a long-range missile calls into question the 1999 U.S. National Intelligence Estimate that North Korea could successfully test an ICBM by 2015.<sup>16</sup> The author of a 2012 RAND technical report on the North Korean

<sup>12</sup> Department of Defense, “Annual Report to Congress: Military and Security Developments Involving the Democratic People’s Republic of Korea 2012,” May 2013.

<sup>13</sup> Ibid, p 19.

<sup>14</sup> North Korea Security Challenges: A Net Assessment (London: The International Institute for Strategic Studies, 2011). pp. 144-146.

<sup>15</sup> U.S. Department of Defense, “Missile Defense Announcement as Delivered by Secretary of Defense Chuck Hagel,” press release, March 15, 2013, <http://www.defense.gov/speeches/speech.aspx?speechid=1759>.

<sup>16</sup> National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015* (unclassified summary), September 1999, [http://www.dni.gov/files/documents/Foreign%20Missile%20Developments\\_1999.pdf](http://www.dni.gov/files/documents/Foreign%20Missile%20Developments_1999.pdf).

nuclear missile threat asserts that the Unha-3 rocket, which successfully lifted an estimated 100 kg satellite payload into orbit in December 2012, is not capable of carrying a nuclear warhead at intercontinental range.<sup>17</sup> The IISS assessment concluded in 2011 that a future North Korean ICBM “would almost certainly have to undergo an extensive flight-test program that includes at least a dozen, if not two dozen, launches and extends over three to five years.”<sup>18</sup> Such a program would make North Korean intentions obvious to the world. On the other hand, it is possible that North Korea would take a radically different approach and accept one successful test as sufficient for declaring operational capability.

The potential ability of North Korea to miniaturize a nuclear warhead and mate it to a ballistic missile, especially an ICBM, is a key concern of the United States. The official position of the Director of National Intelligence is that “North Korea has not yet demonstrated the full range of capabilities necessary for a nuclear armed missile.”<sup>19</sup> Experts at the Institute for Science and International Security, a Washington, D.C.-based think tank, assess that, “North Korea likely has the capability to mount a plutonium-based nuclear warhead on the shorter range [800-mile] Nodong missile” already.<sup>20</sup> A top North Korean general reportedly told his fellow officials in 2012 that their long-range missiles could hit the United States with nuclear weapons,<sup>21</sup> but there is no clear evidence that Pyongyang has developed a warhead capable of surviving re-entry at ICBM range.

## **Other Countries with Significant Ballistic Missile Arsenals**

### **China<sup>22</sup>**

China fields what it calls a “lean and effective” nuclear arsenal that is believed to be significantly smaller than the arsenals of the United States and Russia, even though China has no treaty obligations restricting the number of missiles it can deploy. China has long had a declaratory “no first use” policy for its nuclear weapons, under which its limited nuclear arsenal is intended to deter nuclear attacks against China and give China the ability to retaliate after a nuclear strike. China does not release information about the number of missiles in its nuclear arsenal, but the 2013 DOD report to Congress on military and security developments involving China reported that China’s nuclear arsenal includes a total of 50-75 silo-based and road-mobile ICBMs. The DOD report said that China supplements its ICBMs with intermediate-range ballistic missiles (IRBMs) and medium-range ballistic missiles (MRBMs) “for regional deterrence missions.”<sup>23</sup>

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<sup>17</sup> Evan Ramstad, “After First Glance, North Korea’s Missiles Not As Fearsome,” *Wall Street Journal*, December 13, 2012, <http://blogs.wsj.com/korearealtime/2012/12/13/after-first-glance-north-koreas-missiles-not-as-fearsome/>

<sup>18</sup> IISS (2011), p.155

<sup>19</sup> James Clapper, “DNI Statement on North Korea’s Nuclear Capability,” Office of the Director of National Intelligence, Press Release, April 11, 2013.

<sup>20</sup> David Albright, “North Korean Miniaturization,” US-Korea Institute at SAIS, February 22, 2013, <http://38north.org/2013/02/albright021313>.

<sup>21</sup> “Ex-N. Korea Army Chief: Rockets Could Be Used to Transport Nukes,” *Korean Broadcasting System*, December 11, 2012, [http://english.kbs.co.kr/News/News/News\\_view.html?page=1&No=95239&id=Po](http://english.kbs.co.kr/News/News/News_view.html?page=1&No=95239&id=Po).

<sup>22</sup> For more information, see CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities—Background and Issues for Congress*, by Ronald O'Rourke, and CRS Report RL31555, *China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues*, by Shirley A. Kan.

<sup>23</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2013: Annual Report to Congress*, p. 31, [http://www.defense.gov/pubs/2013\\_china\\_report\\_final.pdf](http://www.defense.gov/pubs/2013_china_report_final.pdf).

Other sources have suggested that China's nuclear arsenal could be significantly larger than DOD's estimates.<sup>24</sup>

China has been engaged in a slow but steady nuclear modernization effort over the years, an effort that China now portrays, at least in part, as a response to U.S. missile defense advances. The DOD report predicted that by 2015 China will field additional road-mobile DF-31A ICBMs and more sophisticated silo-based DF-5 ICBMs. China is also developing a sea-based nuclear capability in the form of a new class of nuclear-powered ballistic missile submarine, which will eventually carry a ballistic missile with a range of 4,600 miles.

China's strategic missile forces, known as the Second Artillery, also field conventionally armed ballistic missiles, including SRBMs, MRBMs, and anti-ship ballistic missiles (ASBMs). These missiles are believed to be intended most prominently to deter Taiwan from formalizing its de facto separation from China. Almost all of China's SRBMs, more than 1,100, according to the 2013 DOD report, are deployed opposite Taiwan. Also of concern to the United States is China's fielding of an ASBM, the DF-21D, known colloquially as a "carrier killer" missile. The DOD report describes the missile as having an assessed range in excess of 1,500 km, and says it "provides the PLA the capability to attack large ships, including aircraft carriers, in the western Pacific."<sup>25</sup>

The development of the DF-21D ASBM is part of a Chinese effort to develop new systems and tactics that are designed to counter or impede the ability of the U.S. military to intervene in a conflict in the Western Pacific. The United States refers to this effort as providing China with "anti-access/area denial (A2/AD)" capabilities. Referencing both China's and Iran's pursuit of "asymmetric means to counter our power projection capabilities," the 2012 Defense Strategic Guidance states that the U.S. military will invest in BMD as one of several approaches to ensure continued power projection capabilities in A2/AD environments.<sup>26</sup>

In addition to deploying ballistic missiles, China is also developing its own missile defense technology. China reported that it successfully tested a ground-based mid-course missile interceptor within its own territory on January 27, 2013. This was China's second reported such test; the first was on January 11, 2010.<sup>27</sup> Chinese media noted that the United States is the only other country to have attempted this technically challenging feat.<sup>28</sup> The Chinese test followed by hours the U.S. test of a three-stage ground-based missile interceptor, underscoring an element of competition in the technological development of BMD systems.<sup>29</sup> China's intentions in developing missile defense technology remain unclear.

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<sup>24</sup> For a discussion of estimates of the size of China's nuclear arsenal, see CRS Report R40439, *Nuclear Weapons R&D Organizations in Nine Nations*, coordinated by Jonathan Medalia.

<sup>25</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2013: Annual Report to Congress*, p. 38.

<sup>26</sup> Leon Panetta, *Sustaining U.S. Global Leadership: Priorities for 21<sup>st</sup> Century Defense*, Department of Defense, Washington, DC, January 5, 2012, pp. 4-5, [http://www.defense.gov/news/Defense\\_Strategic\\_Guidance.pdf](http://www.defense.gov/news/Defense_Strategic_Guidance.pdf). The guidance lists as areas for investment, "implementing the Joint Operational Access Concept, sustaining our undersea capabilities, developing a new stealth bomber, improving missile defenses, and continuing efforts to enhance the resiliency and effectiveness of critical space-based capabilities."

<sup>27</sup> "China Carries Out Land-based Mid-course Missile Interception Test," *Xinhua News Agency*, January 28, 2013.

<sup>28</sup> Xu Tianran, "China's Anti-Missile Test Successful: Govt," *Global Times*, January 29, 2013.

<sup>29</sup> Missile Defense Agency, "Ground-based Interceptor Completes Successful Flight Test," January 26, 2012, <http://www.mda.mil/news/13news0001.html>.

## Russia

The number of Russian ICBMs is constrained by a formal treaty with the United States; their numbers have declined significantly since the early 1990s. Currently, Russia has about 320 ICBM launchers, which, along with its small force of bombers, falls well below the limit of 700 deployed delivery systems contained in the new strategic arms reduction treaty, New START. The 1987 Intermediate-Range Nuclear Forces (INF) Treaty prohibits the United States and Russia from possessing any MRBM or IRBMs. Russia possesses a few hundred very short-range SRBMs that are not likely capable of reaching targets in South Korea or Japan.<sup>30</sup>

## U.S. and Allied Responses

The responses of the United States and its allies in the Asia-Pacific region to the threat of ballistic missiles have included political statements, policy coordination, changes to military doctrine, research and development programs, deployment of sensors, and procurement of ballistic missile interceptors and assets. President Obama has made it clear that in response to threats from North Korea, “the United States is fully prepared and capable of defending ourselves and our allies with the full range of capabilities available, including the deterrence provided by our conventional and nuclear forces.”<sup>31</sup>

The actions of Asia-Pacific countries reflect variation in how defense policy makers in these countries view their vulnerability to ballistic missile threats.<sup>32</sup> The sense of insecurity is most acute among Japanese elites, whereas Australian leaders feel relatively secure from missile attack. South Korean policymakers are aware of the threat, but have prioritized defense against North Korea’s long-range artillery and a cross-border invasion. Southeast Asian leaders appear to be less concerned about ballistic missiles, and their relatively modest defense budgets cannot support the acquisition of technologically advanced BMD systems without forcing reductions in other desired capabilities.

## BMD Capabilities

U.S. BMD assets currently in operation use kinetic kill vehicles to intercept ballistic missiles at various points in the missile’s trajectory (upper tier/mid-course and lower-tier/descent phase), conceptually akin to “a bullet hitting a bullet.”<sup>33</sup> Ground-Based Interceptors (GBI) are designed to counter ICBMs aimed at the continental United States, but other systems such as the PAC-3,

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<sup>30</sup> For more information, see CRS Report R41219, *The New START Treaty: Central Limits and Key Provisions*, by Amy F. Woolf.

<sup>31</sup> The White House Office of the Press Secretary, “Remarks by President Obama and President Park of South Korea in a Joint Press Conference,” press release, May 7, <http://www.whitehouse.gov/the-press-office/2013/05/07/remarks-president-obama-and-president-park-south-korea-joint-press-conference>.

<sup>32</sup> The assessments in this paragraph are based on analysis of statements and reports by the relevant ministries of defense. In particular see, “Defence White Paper 2013,” Australian Government, Department of Defence, May 3, 2013; “Defense of Japan 2012,” Government of Japan, Ministry of Defense, July 31, 2012; “2010 Defense White Paper,” Republic of Korea Government, Ministry of National Defense, December 30, 2010.

<sup>33</sup> The U.S. Navy’s SM-2 Block IV endo-atmospheric (i.e. terminal phase) interceptor uses a blast fragmentation warhead.

Theater High-Altitude Air Defense (THAAD), and Aegis SM-3 are designed to intercept SRBMs and MRBMs in an allied defense and force protection role.

**United States.** The United States has an array of BMD assets already deployed in the Asia-Pacific region: SM-3 interceptors on Aegis-equipped destroyers; PAC-3 batteries at military bases in the theater; and early warning sensors on land (AN/TPY-2), at sea (floating X-band radar), and in space. In response to North Korea's threatening actions and statements in early 2013, DOD decided to deploy a THAAD system to Guam two years ahead of schedule. The Navy, in particular, is seeking an evolution in its BMD capabilities over the next decade. It is seeking to increase its ability to intercept more sophisticated MRBMs, IRBMs, and eventually to develop limited capabilities against ICBMs. Existing DOD plans call for 41 BMD-capable Aegis vessels and over 300 SM-3s deployed by FY2018.<sup>34</sup> The United States is exploring ways to leverage its BMD investments by collaborating with other countries to establish the APPAA.

**Japan.** More than any other country in the region, and even worldwide, Japan has reacted to a national sense of insecurity by investing heavily in BMD capabilities. The Japan Maritime Self-Defense Force (JMSDF) has four cruisers equipped with Aegis tracking software and SM-3 Block IA interceptors, and the Ministry of Defense plans to add two more BMD-capable Aegis cruisers by 2018. Japan fields 17 PAC-3 units, protecting key locations in Tokyo and throughout the archipelago, and will procure more units in FY2013.<sup>35</sup> All of these BMD assets are linked with Japan's advanced FPS-3 and FPS-5 radar. Japanese defense officials say that a space-based early warning system is under consideration for the latter half of this decade.<sup>36</sup>

**South Korea.** South Korea has only recently begun to acquire advanced BMD capabilities. Prior to the election of President Lee Myung-bak in 2008, South Korean leaders prioritized harmonious relations with North Korea over acquisition of missile defense technologies that could provoke Pyongyang. The South Korean Navy now has three KDX-III *Sejon-Daewon* class cruisers equipped with Aegis tracking software—but no interceptors.<sup>37</sup> However, Seoul has announced plans to implement an indigenous Korean Air and Missile Defense (KAMD) system to counter aircraft, cruise missiles and ballistic missiles launched by North Korea. In the near term, KAMD would rely on legacy platforms such as upgraded PAC-2 batteries until Seoul acquires PAC-3 or sea-based interceptors.<sup>38</sup>

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<sup>34</sup> CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke, p. 8.

<sup>35</sup> Arthur Bright, "Japan to Boost Military Budget Amid Regional Tensions," *Christian Science Monitor*, January 9, 2013.

<sup>36</sup> Paul Kallender-Umezu, "Japan Expands Beyond Basic BMD Capabilities," *Defense News*, March 19, 2012.

<sup>37</sup> Brad Hicks, George Galdorisi, and Scott C. Truver, "The Aegis BMD Global Enterprise: A 'High End' Maritime Partnership," *Naval War College Review*, vol. 65, no. 3 (Summer 2012), p. 73.

<sup>38</sup> Chang-kwoun Park, "Establishment of the Korean Air and Missile Defense (KAMD): The Background and Ways Forward," *ROK Angle: Korea's Defense Policy*, no. 70 (July 3, 2012).

### **Iron Dome for South Korea?**

Even before the Israeli “Iron Dome” defense system grabbed headlines by intercepting rockets targeted at Israeli cities, South Korea had been considering a purchase of the system.<sup>39</sup> Iron Dome is not a BMD system, but rather is designed to intercept self-propelled, very short-range rockets (essentially small and unsophisticated missiles) by striking them with guided missiles. The South Korean capital of Seoul is within range of hundreds of North Korean rocket launchers arrayed across the border. Israeli officials claim that the Iron Dome interceptors destroyed 80% of the incoming rockets that they targeted. Iron Dome is not capable of destroying ballistic missiles, which travel at a much higher speed than rockets.

To date, South Korea and Israel have not been able to agree on the terms of a sale of Iron Dome. Reportedly, Israel has not met South Korea’s demand that Israel make a reciprocal purchase of Korean defense equipment.<sup>40</sup> The high cost of the Iron Dome system is another barrier to a purchase, according to reports. South Korea has been indigenously developing defensive systems to fulfill a similar function.

**Australia.** Australia has long maintained several early warning radar sites in cooperation with the United States, but currently has no BMD intercept capability. The Australian Navy plans to procure two Aegis-equipped vessels, which could be fitted with BMD capabilities against SRBMs and MRBMs in the future. Such capabilities would be useful primarily to Australia for defending others in a force projection capacity. Due to the great distance from Northeast Asia, Canberra is faced with a unique threat profile: Australia is only at risk from ICBMs but has no plans to counter such missiles with BMD. Australia relies on the U.S. nuclear umbrella for deterrence, with a treaty-based security guarantee.<sup>41</sup>

## **Bilateral, Trilateral, and Multilateral Cooperation**

The growing and persistent threat of missile attack from North Korea has led U.S. security policy makers to seek deeper BMD cooperation with Asia-Pacific allies. In April 2013, the Chairman of the Joint Chiefs of Staff General Martin Dempsey appealed to Japan and South Korea to “establish a collaborative, trilateral ballistic missile defense architecture” with BMD assets from all three countries.<sup>42</sup> Dempsey stated that the integration of allied BMD networks into a regional system “will be better than the sum of its individual parts.” (See the section on “Potential Benefits and Costs of Systems Integration” for further analysis.) This multilateral defense cooperation can also be viewed as aligning with the goals of the rebalancing to Asia strategy.

Although U.S.-South Korea alliance relations have been closely coordinated in recent years, Seoul has resisted cross-nation integration of BMD systems. The two countries have an ongoing dialogue on BMD, but bilateral cooperation in this area is largely limited to sensor data and intelligence sharing. In May 2013, a Korean defense official stated that South Korea does not

<sup>39</sup> Yuval Azulai, “South Korea mulls importing Iron Dome,” *Globes (Israel)*, November 18, 2012, <http://www.globes.co.il/serveen/globes/docview.asp?did=1000799298>.

<sup>40</sup> Kevin Baron, “Why doesn’t Seoul have Iron Dome?” *Foreign Policy* E-Ring blog, April 9, 2013, [http://e-ring.foreignpolicy.com/posts/2013/04/09/why\\_doesn\\_t\\_seoul\\_have\\_iron\\_dome](http://e-ring.foreignpolicy.com/posts/2013/04/09/why_doesn_t_seoul_have_iron_dome).

<sup>41</sup> The U.S. security guarantee is of great importance to Australia. For further information on the U.S.-Australia security relationship and BMD see CRS Report R42822, *Australia and the U.S. Rebalancing to Asia Strategy*, by Bruce Vaughn.

<sup>42</sup> Karen Parrish, “Leaving Asia, Dempsey Discusses Combined Defense, China Engagement,” *American Forces Press Service*, April 27, 2013.

intend to join a regional, multilateral BMD network and will instead focus on its own KAMD system.<sup>43</sup>

In July 2012, South Korea and Japan came to the brink of signing a military information-sharing agreement, but domestic political considerations led the government of South Korea's President at the time, Lee Myung-bak, to abort the agreement at the last minute. The proposed agreement, known as a General Sharing of Military Information Agreement (GSOMIA), would have enabled more robust bilateral cooperation (and trilateral cooperation with the U.S. military) on BMD, as well as disaster relief, counter-piracy, and other operations. (See the section on the "U.S.-Japan-South Korea Triangle" for further analysis.) Japan-South Korea defense cooperation remains extremely limited due to long-standing historical animosities.

As a staunch U.S. ally, Australia signed a BMD Framework Memorandum of Understanding (MOU) with the United States in July 2004, facilitating policy collaboration and information sharing. Australia relays missile launch and tracking sensor data from its early warning radar and satellites.<sup>44</sup> Such information would likely be highly useful to BMD platforms. The United States, Australia, and Japan have established a working group on BMD as part of their regular trilateral security consultations.<sup>45</sup>

The United States and Japan have researched BMD technology since 1987 and currently are making progress in the joint development of the SM-3 Block IIA interceptor. Initiated in 1998, this bilateral research and development program paved the way for deeper cooperation on BMD. The U.S. Navy and the Japan Maritime Self-Defense Force (JMSDF) manage the program, and the two governments share the costs. In 2011, Japan relaxed its prohibitions on the export of jointly developed defense technology, opening the door for sales of SM-3 Block IIA interceptors to third parties under certain conditions.

The mature U.S.-Japan partnership in BMD has already served as a key driver of improvements to alliance interoperability.<sup>46</sup> Both nations feed information from a variety of sensors to create a common operating picture at the Bilateral Joint Operating Command Center at Yokota Air Base, located outside Tokyo. According to Japan Air Self-Defense Forces (JASDF) officials cited in a March 2012 article, "A joint operation room for the two sides was newly set up in the basement of the new ASDF command headquarters building to allow them to decide quickly which [country] should be responsible for interception in missile defense, based on information they acquired."<sup>47</sup> A Center for Strategic and International Studies (CSIS) report stated in June 2012 that the United States and Japan "have essentially created a joint command relationship... from the perspective of any possible adversary."<sup>48</sup> This information sharing arrangement improves the effectiveness of each nation's target identification, tracking, and interceptor cueing. In September 2012, Secretary of Defense Leon Panetta announced that the United States would deploy a second

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<sup>43</sup> Kim Eun-jung, "Seoul Declines Joining U.S.-led Missile Defense," *Yonhap News Agency*, May 9, 2013.

<sup>44</sup> Ashton Carter, "The U.S. Strategic Rebalance to Asia: A Defense Perspective," Speech as delivered in New York on August 1, 2012. <http://www.defense.gov/speeches/speech.aspx?speechid=1715>

<sup>45</sup> Frank A. Rose, "Growing Global Cooperation on Ballistic Missile Defense," Remarks as prepared for delivery in Berlin, Germany, September 10, 2012, <http://www.state.gov/t/avc/rls/197547.htm>.

<sup>46</sup> David J. Berteau and Michael J. Green, *U.S. Force Posture Strategy in the Asia Pacific Region: An Independent Assessment*, Center for Strategic and International Studies, Washington, DC, June 27, 2012. p. 26

<sup>47</sup> "ASDF Command Headquarters Transferred to Yokota," *Jiji Press English News Service*, March 26, 2012.

<sup>48</sup> Berteau and Green, p. 26



AN/TPY-2 X-band radar to Japan, this one sited in the southern part of Japan's main island of Honshu, to improve coverage of North Korean ballistic missile launches. Secretary of Defense Hagel confirmed plans for the additional radar in Japan in March 2013.<sup>49</sup>

The United States conducts biennial, multilateral computer-simulation exercises with partner countries to study the role and effects of BMD in a conflict. These exercises, called "Nimble Titan," include representatives from Japan, Australia, and numerous European countries. Japan and the United States hold an annual command exercise called "Keen Edge," which examines potential conflicts centered around Japan and simulates BMD responses. To date, the JSDF is the only partner with which the U.S. military has conducted kinetic BMD exercises, primarily as testing for the Aegis system and SM-3 Block IA interceptors.<sup>50</sup>

In April and December 2012, North Korea launched three-stage Taepodong-II ballistic missiles (called Unha-3 by North Korea), providing opportunities for the United States, Japan, and South Korea to test their sensors' tracking capabilities operationally. The missile tests reportedly revealed gaps in sensor coverage and flawed communications protocols, which Japanese defense officials subsequently rectified.<sup>51</sup> Also, the U.S. Navy deployed its sea-based X-band radar to the theater before both launches.<sup>52</sup> Japanese, South Korean, and Taiwanese officials all declared that they would intercept a missile if it endangered their territory.<sup>53</sup> In the weeks leading up to the April launch, the Japanese government formed several task forces and held multiple meetings with high-level U.S. defense officials.<sup>54</sup> Japan mobilized three Aegis destroyers and deployed PAC-3 units on the island of Okinawa and on three smaller islands close to the announced trajectory of the rocket. These statements and deployments echoed Japanese actions prior to North Korea's 2009 Taepodong-II missile launch.

## Opposition to BMD in East Asia

The efforts of the United States and others to defend themselves from the threat of ballistic missiles have elicited opposition in East Asia as well as in Europe since President Reagan first announced the Strategic Defense Initiative (often referred to as "Star Wars") in 1983. The United States formally withdrew from the 1972 Anti-Ballistic Missile (ABM) Treaty in June 2002, a step that allowed it to pursue BMD programs without restriction.<sup>55</sup> Russia has strongly criticized U.S.

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<sup>49</sup> Karen Parrish, "U.S., Japan Begin Coordination on Second Radar Installation," *American Forces Press Service*, September 17, 2012; U.S. Department of Defense, "Missile Defense Announcement as Delivered by Secretary of Defense Chuck Hagel," press release, March 15, 2013, <http://www.defense.gov/speeches/speech.aspx?speechid=1759>.

<sup>50</sup> For a list of SM-3 flight tests, including those launched from Japanese ships, see CRS Report RL33745, *Navy Aegis Ballistic Missile Defense (BMD) Program: Background and Issues for Congress*, by Ronald O'Rourke.

<sup>51</sup> Sugio Takahashi, "Ballistic Missile Defense in Japan: Deterrence and Military Transformation," Institut Français des Relations Internationales, Proliferation Papers 44, December 2012.

<sup>52</sup> Richard Dudley, "Pacific Allies Prepare for North Korean Rocket Launch," *Defense Update*, December 8, 2012, [http://defense-update.com/20121208\\_pacific-allie-prepare-for-north-korean-rocket-launch.html](http://defense-update.com/20121208_pacific-allie-prepare-for-north-korean-rocket-launch.html).

<sup>53</sup> "Japan Will Intercept NKorean Rocket if Threatened," *Associated Press Online*, March 30, 2012.

<sup>54</sup> "Japan, US Agree to Boost Cooperation over North Korea's Planned Rocket Launch," *Kyodo News Service*, April 11, 2012.

<sup>55</sup> The 1972 ABM Treaty, as amended, limited the United States and the Soviet Union to a single anti-ballistic site of up to 100 interceptors against ICBMs. The U.S. site at Grand Forks, North Dakota was dismantled and put into caretaker status in the mid-1970s; the Soviet Union, and now Russia, maintains and has upgraded its one site around Moscow. The Treaty further placed significant restrictions on the development, testing and deployment of BMD (continued...)

BMD deployments in Europe as targeted, at least partially, at Russia, and thus a danger to the strategic stability of nuclear deterrence. In the Asia-Pacific region, North Korea and China have been the most vocal opponents. China, like Russia, argues that U.S. BMD programs are a threat to strategic stability. Both North Korea and China argue that U.S. BMD policies are evidence of hostile intentions.

## **North Korean Perspective**

The North Korean state-run media have repeatedly castigated U.S. and allied BMD deployments, calling related activities examples of hostile policies toward North Korea. Articles in September 2012, for example, described BMD as a pretext for aggressive Japanese warmongering and for an American missile attack network aimed at Eurasia. More commentary in January 2013 accused the United States of using BMD to contain China and Russia militarily and provoking a regional arms race.<sup>56</sup> A North Korean spokesman stated that the placement of a new missile defense radar in southern Japan would compel North Korea to bolster its nuclear deterrent.<sup>57</sup>

The statements emanating from Pyongyang may be attempts to stake out a bargaining position for North Korea, not merely hostile rhetoric. In bilateral and multilateral negotiations covering its nuclear program, North Korea has sought to define “denuclearization of the Korean Peninsula” to mean that the United States would withdraw its extended deterrence guarantee from South Korea when North Korea eliminated its nuclear weapons. In this context, North Korean criticisms of BMD are possibly signals directed at the other countries in the Six-Party Talks on North Korean denuclearization.

## **Chinese Perspective**

The Chinese government has long been highly critical of U.S. and allied BMD efforts in East Asia. Newly installed Chinese President Xi Jinping signaled continuity in China’s stance on the issue during a visit to Russia in March 2013. In a joint statement issued in Moscow, the two governments called on the international community “to act cautiously” in deploying and cooperating on BMD, and voiced their opposition to “the unilateral and unchecked buildup of anti-missile capabilities by a country or a group of countries to the detriment of strategic stability and international security.”<sup>58</sup>

China’s criticisms of U.S.-led BMD efforts in East Asia have focused on the perceived potential threat that they pose to China’s nuclear deterrent, and therefore to strategic stability between the United States and China. According to a summary prepared by the U.S. organizers of a DOD-funded U.S.-China academic dialogue on nuclear issues in 2012, Chinese participants indicated that, “Both national missile defense and (particularly) regional missile defense are viewed as a

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(...continued)

systems above a certain capability.

<sup>56</sup> Hyon-to Ri, “Maneuver to Establish Missile Defense System Aimed at Global Hegemony,” *Rodong Shinmun*, January 19, 2013.

<sup>57</sup> “North Korea Blasts U.S. for Beefing up Its Missile Defense,” *Yonhap News Agency*, September 22, 2012.

<sup>58</sup> “Joint Statement of the People’s Republic of China and the Russian Federation on Win-Win Cooperation and Deepening the Comprehensive Partnership of Strategic Coordination,” Xinhua Asia-Pacific News Service in Chinese, March 22, 2013.

threat to the effectiveness of a Chinese second strike (after a potential U.S. attempt at a disarming first strike).” The summary added that, “Chinese participants feared that advanced missile defense systems deployed near China’s coast might be able to intercept Chinese ICBMs.”<sup>59</sup>

A leading Chinese military scholar has suggested that China’s anxiety about potential threats to its nuclear deterrent has been heightened recently by language in Section 1045 of the FY2013 NDAA (P.L. 112-239) related to the possibility of a conventional strike against China’s nuclear forces. The NDAA requires the Commander of the U.S. Strategic Command to submit a report on China’s “underground tunnel network” and “the capability of the United States to use conventional and nuclear forces to neutralize such tunnels and what is stored within such tunnels.” The Chinese military scholar wrote that the legislation “seems to imply that a conventional strike against the Chinese nuclear weapon system is an option.”<sup>60</sup>

Other areas of Chinese concern about U.S. BMD programs include the following:

- **The potential for BMD programs to contribute to instability in the region by antagonizing North Korea, and thus spurring it to work harder to strengthen its nuclear deterrent and its ballistic missile program.** In March 2013, China’s Foreign Ministry spokesman argued that the U.S. moves “will intensify antagonism and will not be beneficial to finding a solution” to the North Korea problem. Urging the United States to “adopt a responsible attitude and act prudently,” the spokesman added, “The anti-missile issue has a direct bearing on global and regional balance and stability.”<sup>61</sup>
- **The potential for BMD programs to strengthen the United States’ alliance relationships in the region, which Beijing fears could be turned against China.** China appears to be particularly anxious about the implications of integration of command and control systems between the United States and Japan. Beijing also worries about strengthened U.S. alliances with Korea, Australia, and the Philippines, and the potential for them to be turned against China.
- **The potential for BMD programs to undermine China’s conventional deterrent against Taiwan.** China has stationed a large number of conventional SRBMs opposite Taiwan, with the goal of deterring Taiwan from formalizing its separation from China. Chinese military scholars have warned that U.S. BMD programs, and particularly the sale of BMD systems to Taiwan, send “wrong signals to the ‘Taiwan independence’ forces.”<sup>62</sup> The implication is that BMD programs may give Taiwanese a sense of greater security, emboldening some to ignore the Chinese missile threat and actively resist China’s efforts to unify with Taiwan. The United States has been unsympathetic to this set of Chinese concerns, and it has sold Taiwan limited missile defense infrastructure. In the

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<sup>59</sup> Christopher Twomey, Michael Glosny, and Ryan Jacobs, *US-China Strategic Dialogue, Phase VII*, Naval Postgraduate School, Monterey, CA, January 2013.

<sup>60</sup> Major General Yao Yunzhu, *China Will Not Change Its Nuclear Policy*, China-U.S. Focus, April 22, 2013, <http://www.chinausfocus.com/peace-security/china-will-not-change-its-no-first-use-policy/>.

<sup>61</sup> Sui-Lee Wee and Ben Blanchard, “China Criticizes U.S. Anti-missile North Korea Plan,” *Reuters*, March 18, 2013.

<sup>62</sup> See, for example, Chen Zhou, “Anti-Ballistic Missile Program: Does No Good to World Peace and Security,” *U.S.-China Focus*, August 24, 2012, <http://www.chinausfocus.com/peace-security/anti-ballistic-missile-program-does-no-good-to-world-peace-and-security/>.

1990s, the United States sold Taiwan three Patriot missile defense fire units with PAC-2 Guidance Enhanced Missiles (GEM). In 2008 and 2010, Presidents George W. Bush and Barack Obama respectively notified Congress of additional sales to Taiwan of PAC-3 systems.<sup>63</sup> Some Chinese scholars see U.S. BMD cooperation challenging their approach to Taiwan even without additional BMD infrastructure on Taiwan itself. Responding to reports that the United States might be considering installing X-band radar systems in both southern Japan and the Philippines, one Chinese military scholar declared that for the United States, “it would be the same as putting a safety helmet on Taiwan, and laying down preparations for future intervention in the Taiwan Strait.”<sup>64</sup>

- **The potential for BMD programs to undermine the effectiveness of other Chinese uses of conventional ballistic missiles.** China has not made this argument prominently, possibly out of an unwillingness to highlight potential offensive uses of its ballistic missiles outside of a Taiwan context. Nonetheless, some articles in the popular media in China have argued that U.S. BMD programs are aimed, in part, at countering such Chinese capabilities as the new DF-21D anti-ship ballistic missile.

## Russian Perspective<sup>65</sup>

Since the United States first sought to deploy regional BMD capabilities in Europe against the threat of Iranian ballistic missiles, Russia has remained steadfast in opposition. Russia has long stated that U.S. and allied BMD could be used, especially as its capabilities evolved, to threaten Russia’s strategic nuclear deterrent. The United States and its allied partners in Europe have held numerous discussions and briefings with Russian counterparts over the years to attempt to dispel the notion that allied BMD deployments would affect Russia in this regard, with little tangible effect. Russia remains concerned about U.S. BMD cooperation in Europe, and although the Russian perspective resonates among some Europeans, U.S. allies in Europe largely support the effort to deploy regional BMD capabilities in Europe.

Although Russia has been relatively muted regarding U.S. and allied BMD cooperation in the Asia-Pacific region today, Russia has expressed some concern about progress toward a global BMD system and has complained to Japan in bilateral settings about this development.<sup>66</sup> It is possible that Russian opposition to the European Phased Adaptive Approach could at some point be echoed in East Asia. China has closely followed Russian objections to U.S. BMD programs, with China’s state-controlled media regularly carrying reports on Russian statements on the subject.

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<sup>63</sup> For details of the sales to Taiwan, see, CRS Report RL30957, *Taiwan: Major U.S. Arms Sales Since 1990*, by Shirley A. Kan.

<sup>64</sup> Li Ruijing, “对美国反导不能轻描淡写” (“We Cannot Understate U.S. Missile Defense”, ), *世界报* (*World News*), August 29, 2012.

<sup>65</sup> For more information, see CRS Report RL33407, *Russian Political, Economic, and Security Issues and U.S. Interests*, coordinated by Jim Nichol.

<sup>66</sup> “US Missile Shield Elements Making up Global System in Various Regions,” *Asia News Monitor*, April 5, 2012.

## Challenges, Risks, and Opportunities Arising from Increased Ballistic Missile Defense Cooperation

At present, U.S.-allied cooperation on BMD in the Asia-Pacific region follows the hub-and-spokes model of bilateral alliance relationships centered on the U.S. military. The United States and its allies share information and have commitments to mutual defense on a bilateral basis, but the multilateralism that underpins the European BMD architecture is largely absent. It is unclear what the desired end-state of a formal APPAA would look like, but statements by senior U.S. defense officials seem to indicate that the U.S. military is encouraging greater integration of command, control, computers, and communications (C4) functions among U.S. allies.<sup>67</sup>

### Potential Benefits and Costs of Systems Integration

There are both potential benefits and costs to deeper integration of BMD systems between countries. The primary potential benefits are enhanced effectiveness (in range, coverage, and targeting accuracy), cost efficiency, burden sharing, and the signaling effects of a collective organization. A 2006 CSIS study on BMD in East Asia found that “recent operational studies have shown that regional netting of sensors can cut the requirement for fire units (i.e., weapon-launching sites or platforms) to defend a given area by two-thirds.”<sup>68</sup> The same report states, “Sharing technologies, development costs, data, and more through a regional approach to defense would make defenses both more effective and more quickly deployable... [A] regional approach would also ease diplomatic pressures on any individual nation moving toward BMD.”<sup>69</sup> The primary potential costs are the expense and difficulty of multilateral coordination and the classic “alliance dilemma” of entrapment in a potential conflict that might be against the national interest. Asia-Pacific leaders would also face the risk that participation in a regional BMD architecture may sour relations with Beijing.

The establishment of a collective, interoperable, regional BMD architecture anchored by the U.S. military—a step beyond what is envisioned for an APPAA—would be a significant shift from the current approach. Information sharing among the United States and its East Asian allies could necessitate modifications to the C2 relationships of the countries involved, and collective action would call for even greater changes. Participants would need to resolve difficult questions such as who is in command of the intercept—the country targeted by missiles, the country firing the interceptor, or a particular authority established for this purpose. An integrated BMD network might be the forerunner of more institutionalized collective security in the region, though numerous, significant political hurdles would have to be cleared by all parties involved before serious discussion could begin.

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<sup>67</sup> “U.S. Ballistic Missile Defense Not up to Threat: Admiral,” *Jiji Press English News Service*, March 27, 2012.

<sup>68</sup> Jeremiah Gertler, *The Paths Ahead: Ballistic Missile Defense in Asia*, Center for Strategic and International Studies, Washington, DC, March 2006, p. 37.

<sup>69</sup> *Ibid.*, p. 37.

## **U.S.-Japan-South Korea Triangle**

Robust trilateral military cooperation with South Korea and Japan could be a major force multiplier for the United States, in missile defense as least as much as in other areas of security. A trilateral partnership could improve defense policy coordination to shape the regional security environment and share the burdens of crisis response. From a technical perspective, the expanded sensor and interceptor coverage of a trilateral C4 network could enhance BMD effectiveness against North Korea by tracking missiles from multiple angles at multiple points in their flight trajectory. However, South Korea might not benefit as much, because it is so close to North Korea that incoming missiles fly on a lower trajectory and could arrive in a matter of a few minutes.

To participate in a collective BMD system, Japan likely would need to revise its constitution or issue a re-interpretation of the constitutional limitations on collective self-defense. Both of these propositions are politically contentious and would elicit strong opposition from Koreans and Chinese who fear a return of Japanese militarism. The Japanese public itself is ambivalent about taking these controversial steps. On the other hand, an expansion of security cooperation centered on BMD could have a positive effect of dulling this anxiety about Japan's military intentions. For example, in a journal article in early 2012, a South Korean Vice Admiral extolled the strategic benefits of trilateral cooperation in naval missile defense, in part on these grounds.<sup>70</sup>

At present, unresolved hostility between Japan and Korea based on historical issues continues to thwart a strategic partnership and may inhibit certain aspects of a future APPAA.<sup>71</sup> The Commander of U.S. Pacific Command in July 2012 expressed his desire for Tokyo and Seoul "to find a way past the political divide that stops them from recognizing the importance of information sharing as it relates to the security environment."<sup>72</sup> Domestic politics in South Korea and Japan will, however, continue to have a large effect on the degree of military cooperation. Japan-South Korea relations were quite good in the first four years of the Lee administration in South Korea, but collapsed into mutual recrimination in the summer of 2012 and have since remained contentious.

## **U.S.-China Relations**

The U.S.-China relationship has long been complicated by high levels of strategic mistrust, and Beijing asserts that the issue of U.S. BMD contributes to its mistrust of Washington. To allay stated Chinese concerns and improve transparency about both countries' nuclear programs, the United States has sought to engage China in senior-level dialogue on nuclear issues and BMD. So far, however, such dialogue has proved elusive. The two countries held a single round of an official nuclear dialogue in the final year of the George W. Bush Administration, in April 2008, but China declined to hold follow-up meetings. In 2011, the two countries inaugurated a Strategic Security Dialogue (SSD) under the framework of the broader U.S.-China Strategic and Economic Dialogue, but its first two SSD meetings in 2011 and 2012 focused on cyber security and

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<sup>70</sup> VADM Ho-Sub Jung, "ROK-US-Japan Naval Cooperation in the Korean Peninsula Area: Prospects for Multilateral Security Cooperation," *International Journal of Korean Studies*, Spring 2012, p. 200.

<sup>71</sup> For more information, see CRS Report RL33436, *Japan-U.S. Relations: Issues for Congress*, coordinated by Emma Chanlett-Avery.

<sup>72</sup> Richard Halloran, "The Rising East: U.S. Commander Wants Tokyo, Seoul to Resolve Disputes," *Honolulu Civil Beat*, July 30, 2012.

maritime disputes, rather than nuclear issues or BMD. The United States hopes that the 2013 SSD will include nuclear issues and BMD. The most sustained discussion of nuclear issues and BMD between the two countries so far has occurred in a semi-official “Track 1.5” dialogue and an academic “Track 2” dialogue, both funded by the DOD Defense Threat Reduction Agency.<sup>73</sup>

At the 2012 session of the Track 2 academic dialogue, participants discussed possible “confidence and security building measures” that might help reassure China about U.S. intentions. A Chinese participant recommended that “China be allowed to observe missile defense tests and the data gleaned from them so as to build confidence in U.S. systems as non-threatening.” U.S. participants reportedly raised concerns, however, that China might share data and insights with other actors, in particular North Korea, with which China has close ties.<sup>74</sup> Writing separately, a U.S. scholar has suggested that efforts to reassure China about the intent of U.S. BMD may also be complicated by the fact that, “the presence of missile defense assets in Taiwan is clear evidence that missiles from North Korea are not the only ones that the United States seeks to defeat.”<sup>75</sup>

Chinese commentators have suggested in the last year that the United States and its allies may be taking advantage of North Korean actions to pursue BMD beyond levels warranted by the North Korean threat. Writing in August 2012 and apparently referring to the United States, one senior military scholar wrote, “Some of the countries involved exaggerate the so-called regional missile threats purposely and develop anti-ballistic missile systems beyond the necessity of their homeland defense.”<sup>76</sup>

The U.S.-China disconnect over BMD may have had the consequence of helping bolster China’s relations with Russia. China’s and Russia’s shared antipathy toward U.S. BMD is an important point of commonality in their bilateral relationship, although Russia is also wary of the program of nuclear modernization that China says it is carrying out partly in response to U.S. BMD.

## **Deterrence and Dissuasion of North Korea**

Some argue that enhanced BMD cooperation could negate the coercive value of North Korean ballistic missiles. A robust, cooperative BMD effort could improve defense and deterrence for South Korea and, especially, Japan against North Korean ballistic missiles. Australia, though an unlikely target, would benefit from an earlier intercept point against ballistic missiles launched from Northeast Asia.<sup>77</sup> Another benefit may be the dissuasion effect of a coordinated BMD response to North Korea’s missile program: Pyongyang might decide that its development of

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<sup>73</sup> The Track 1.5 dialogue, the China-US Strategic Nuclear Dynamics Dialogue, is hosted on the U.S. side by Pacific Forum CSIS and on the Chinese side by the China Foundation for International Strategic Studies. The seventh meeting of the dialogue took place in Beijing in January 2013. The Track 2 dialogue, the U.S.-China Strategic Dialogue, is hosted on the U.S.-side by the Naval Postgraduate School and Pacific Forum CSIS. The Chinese co-host is the China Arms Control and Disarmament Association. The seventh phase of the dialogue took place in Hawaii in June 2012. For more information, see Twomey, et al. (2013) and CSIS, *U.S.-China Strategic Nuclear & Space Security Dialogue*, January 28, 2013, <http://www.csis.org/event/us-china-strategic-nuclear-space-security-dialogue>.

<sup>74</sup> Twomey, et al. (2013).

<sup>75</sup> Acton (2012).

<sup>76</sup> Chen Zhou, “Anti-Ballistic Missile Program: Does No Good to World Peace and Security,” *U.S.-China Focus*, August 24, 2012, <http://www.chinausfocus.com/peace-security/anti-ballistic-missile-program-does-no-good-to-world-peace-and-security/>.

<sup>77</sup> Gertler, p. 38.

missiles and WMD is in fact counterproductive and could conceivably reduce its investment in those capabilities. On the other hand, some Chinese observers argue that these BMD efforts increase North Korea's sense of insecurity and encourage investments in asymmetric capabilities such as ballistic missiles.

## **BMD Program Evolution**

Stated U.S. BMD policy is designed to defend the U.S. homeland against limited ballistic missile attack by rogue states and to defend against regional threats to U.S. forces, allies and partners; it is not intended to affect the strategic balance with Russia and China. But some observers believe that U.S. BMD systems over the coming decade may be on a trajectory to become increasingly capable against Chinese and Russian ballistic missiles. Although the United States recently dropped its plan for Phase 4 of the EPAA, which would have included a limited capability against first generation ICBMs from Iran, efforts to improve ICBM defenses are likely to continue.

These trends raise important questions. If such efforts proceed, how might Russia and China respond? Will Russia or China or both further expand their ballistic missile forces, or develop ballistic missiles capable of evading U.S. BMD systems? How might evolving U.S. BMD capabilities against ICBMs affect prospects for regional BMD capabilities over time? The 2013 DOD report to Congress on military and security developments involving China states that China is "working on a range of technologies to attempt to counter U.S. and other countries' ballistic missile defense systems."<sup>78</sup> According to the summary of the 2012 DOD-sponsored Track 2 academic dialogue with China, American participants "repeatedly warned their Chinese colleagues" that if China were to share such technologies with North Korea or other so-called rogue states, the United States would view such a development as "highly escalatory."<sup>79</sup>

## **Recent Congressional Action**

### **Congressional Action in the FY2013 NDAA**

Section 229 of the FY2013 NDAA stated that it is the sense of Congress that "the threat from regional ballistic missiles, particularly from Iran and North Korea, is serious and growing." Provisions in the NDAA related to missile defense in the Asia-Pacific include the following:

#### **Reports**

- The Secretary of Defense is required to evaluate possible additional locations in the United States suited for "future deployment of an interceptor capable of protecting the homeland against threats from such nations as North Korea and Iran" (Section 227).

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<sup>78</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2013: Annual Report to Congress*, p. 31-32, [http://www.defense.gov/pubs/2013\\_china\\_report\\_final.pdf](http://www.defense.gov/pubs/2013_china_report_final.pdf).

<sup>79</sup> Christopher Twomey, Michael Glosny, and Ryan Jacobs, *US-China Strategic Dialogue, Phase VII*, Naval Postgraduate School, Monterey, CA, January 2013, p. 16.



- The Secretary of Defense is required to submit a report describing the status and progress of regional missile defense efforts by July 1, 2013 (Section 229).

## **Sense of Congress Legislation**

The legislation states that it is the sense of the Congress that

- DOD should improve the performance and reliability of the GMD system through rigorous testing and evaluation, in order to continue providing reliable protection of the homeland from limited ballistic missile attack (Section 228).
- DOD has taken a number of prudent, affordable, and operationally significant steps to hedge against increased missile threats from North Korea and Iran and that DOD should consider other steps as the threats evolve (Section 228).
- the serious threat from Iranian and North Korean ballistic missiles puts at risk allies and U.S. forward-deployed forces, which DOD is obligated to defend (Section 229).
- DOD “should also continue with its phased and adaptive regional missile defense efforts tailored to the Middle East and the Asia-Pacific region” (Section 229).
- U.S. allies and partners in the Middle East and Asia-Pacific region are contributing to regional missile defense capabilities by hosting U.S. BMD systems, by jointly developing missile defense capabilities, and by cooperating in regional missile defense architectures (Section 229).

## **Issues for Congress**

### **Funding for Asia-Pacific Phased Adaptive Approach**

Congress has consistently authorized and appropriated funding for BMD as a core component of U.S. defense policy in countering ballistic missile threats from rogue states. There have been exceptions for programs deemed unlikely to deliver capabilities in the near- or medium-term, but the overall level of funding support for BMD programs in Congress to date has remained steady. It is possible that the APPAA will require additional funding, beyond that for which DOD has planned. Costs could include funds for more BMD systems, sensors, C4 infrastructure, bases, and/or military construction. As part of any agreement to deploy BMD capabilities in the region, U.S. allies might want additional, non-BMD related weapons systems. In a congressionally-mandated independent assessment of U.S. force posture strategy in the Asia-Pacific region, the Center for Strategic and International Studies (CSIS) recommended that the United States deploy THAAD and additional PAC-3 units to protect forward deployed forces.<sup>80</sup> Other observers believe the stated threats are exaggerated and that the U.S. BMD program, especially the U.S. GMD system does not work.<sup>81</sup>

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<sup>80</sup> The CSIS study fulfilled the requirement for an independent assessment of U.S. force posture in the Asia-Pacific region mandated in Section 346 of the FY2012 National Defense Authorization Act (P.L. 112-81).

<sup>81</sup> See for instance, *Characterizing the North Korean Nuclear Missile Threat*, Markus Schiller, RAND Corporation, 2012, [http://www.rand.org/content/dam/rand/pubs/technical\\_reports/2012/RAND\\_TR1268.pdf](http://www.rand.org/content/dam/rand/pubs/technical_reports/2012/RAND_TR1268.pdf) and “Alaskan Folly,” (continued...)

Considering the current threats from ballistic missiles, potential issues for Congress are whether DOD is expanding BMD programs at an appropriate level, and whether current and planned BMD capabilities are the best and most cost-effective approach for addressing ballistic missile threats.

## **Foreign Military Sales**

The United States has sold to allies several types of BMD capabilities: Aegis tracking software, PAC-2 and PAC-3 batteries, and SM-3 Block IA interceptors (the last to Japan only). There is a potential for significant further sales if South Korea and Australia decide to emphasize BMD in future budgets, or if Southeast Asian countries such as Vietnam, the Philippines or Singapore begin to view ballistic missiles as a threat to their security. Even if these countries do not participate in a regional BMD system, some analysts have suggested that “reliance of non-U.S. assets on American hardware and software in systems like Aegis goes a long way toward syncing allied capabilities and interoperability [at the technical level].”<sup>82</sup> A potential issue for Congress is what role, other than those already defined in statute; Congress would play a key role in overseeing Foreign Military Sales (FMS) of these BMD systems.

## **Outlook for Near Term**

As the executive branch further develops U.S. BMD policy in the Asia-Pacific region, Congress has the opportunity to shape this development. The budget allocated to these BMD efforts will affect U.S. defense posture and capabilities in the region, and potential FMS financing of U.S. arms exports could help determine allied approaches to BMD. Through the power of the purse, oversight, legislation, or other tools, Congress may choose to encourage the evolution of an Executive Branch-led APPAA or other formal, collective BMD architectures, or it may choose to slow or thwart this current development. The degree of multilateral integration of BMD assets, accommodation of Russian and Chinese concerns, strategic focus, and technical foundation of BMD capabilities are just several of the critical issues that may merit congressional attention going forward.

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Foreign Policy, Joe Cirincione, March 13, 2013, [http://www.foreignpolicy.com/articles/2013/03/18/alaskan\\_folly](http://www.foreignpolicy.com/articles/2013/03/18/alaskan_folly).

<sup>82</sup> Hicks, et al., p. 76

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